

CLAIMSsub a²

1. A method comprising:
 - a. requesting from a customer premises terminal via a local link to a line unit and telephone network switch in a switched telephone network a communication path to a destination;
 - b. detecting that the request does not seek conversion in said line unit;
 - c. connecting said terminal through a portion of said line unit around a converter in said line unit to a wide band data switch connected to a data network.
2. A method according to claim 1, wherein said portion of said line unit comprises a concentrator network of said line unit.
3. A method according to claim 2, wherein said converter comprises a CODEC.
4. A method according to claim 2, wherein said concentrator network includes a switching system.
5. A method according to claim 4, wherein said switching system provides hard wired switching.
6. A method according to claim 5, wherein the switching in said switching system provides hard wired switching between said terminal and said wide band data switch.

7. A method according to claim 5, wherein said switching system is connected to a digital signal processor (DSP).

8. A method according to claim 5, wherein said switching system comprises gated-diode cross point (GDX) switching.

9. A method according to claim 5, wherein said switching system comprises cross point switching.

sub 23 10. A method according to claim 7, wherein said digital signal processor is associated with said line unit.

11. A method according to claim 7, wherein said digital signal processor is associated with said wide band data switch.

12. A method according to claim 7, wherein said digital signal processor (DSP) is integrated with said line unit.

sub 24 13. A method according to claim 1, wherein said request is made by emitting from said terminal a signal of a predetermined characteristic and wherein said detecting is accomplished by a detecting device
5 associated with said line unit.

14. A method according to claim 1, further including the steps of: signaling a central processing unit (CPU) controlling said telephone network switch to effect an entry in a journal of said
5 telephone network switch, and using said entry for

billing for the communications path set up in response to said request.

15. A method according to claim 1, wherein said connection through a portion of said line unit around a converter therein to a wide band switch is a virtual hard wired connection.

16. A method according to claim 15, wherein said connection to said wide band network is through an Asynchronous Transfer Mode (ATM) edge device.

17. A method according to claim 1, wherein said line unit comprises a line card.

sub a5 18. A method comprising:

a. requesting from a customer premises terminal via a local link to a line unit and telephone network switch in a switched telephone network a communication
5 path to a destination;

b. detecting that the request seeks bandwidth in excess of that available through said line unit;

c. connecting said terminal through a portion of said line unit around a converter in said line unit
10 to a wide band data switch connected to a data network.

19. A method according to claim 18, wherein said portion of said line card comprises a concentrator network of said line card.

20. A method according to claim 19, wherein said request is made by emitting from said terminal a signal of a predetermined characteristic and wherein

said detecting is accomplished by a detecting device
5 associated with said line unit.

21. A method according to claim 19, wherein said portion of said line unit comprises a concentrator network of said line unit including a switching system.

22. A method according to claim 21, wherein said switching system provides hard wired switching.

23. A method according to claim 22, wherein the switching in said switching system provides hard wired switching between said terminal and said wide band data switch.

24. A method according to claim 23, wherein said switching system is connected to a digital signal processor (DSP).

Sub 26 25. A method according to claim 24, wherein said digital signal processor is associated with said line card.

26. A method according to claim 23, wherein said digital signal processor is associated with said wide band data switch.

27. A method comprising:

a. receiving a signal via a local link from customer premises in a telecommunications network connected by said local link to a program controlled
5 switch in said telecommunications network;

b. making a determination regarding a pre-established characteristic of said signal;

c. responsive to said determination, solid state switching said signal to digital signal processing and a wide band network edge device.

28. A method according to claim 27, wherein said solid state switching comprises cross-point switching.

29. A method according to claim 28, wherein said cross point switching is performed in a line unit in said telecommunications network.

30. A method according to claim 29, wherein said cross-point switching directs said signal away from a two-way digital/analog converter in said line unit having predetermined narrowband digital bit-rate capabilities.

31. A method according to claim 30, wherein said wide band network edge device is an Asynchronous Transfer Mode (ATM) edge device.

32. A method according to claim 31, wherein said digital signal processing occurs in said edge device.

33. A method according to claim 27, wherein said digital signal processing is performed in a processor separate from said wide band edge device.

34. A method according to claim 33, wherein the processor performing said digital signal processing is associated with a line unit through a portion of which said signal is conducted.

35. A method according to claim 34, wherein said processor performing said digital signal processing comprises a part of said line unit.

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36. A method according to claim 34, wherein said digital signal processing is performed in an adaptive digital signal processor with a programmed controller providing coding and decoding functions adapted to the particular communication service requested by said signal and the physical level of signal protocol used over said local link from said customer premises

37. A communications network comprising:

a switched telecommunications network comprising trunked together program controlled switches connected to subscriber premises by local links;

line units connecting said local links to said switches, said line units including cross point switches and converters performing digital coding and decoding (CODECs);

said line units having monitors detecting signals from said customer premises having a pre-established characteristic;

said line units having ports connected to said cross-point switches, said ports having connections to a wide band data switch connected to a data network, wherein when a monitor in one line unit detects signals from one subscriber premises having said pre-established characteristics, the cross-point switch in the one line unit switches signals through

20 from the link to the one subscriber premises to one of
~~said ports to said wide band data switch.~~

38. A communications network according to claim 37, further including digital signal processors for processing the signals switched by said cross-point switches to said data network.

39. A communications network according to claim 38, wherein said digital signal processors are associated with said wide band switch to said data network.

sub 2⁸ 40. A communications network according to claim 39, wherein the signals switched through said cross-point switches to said ports to said wide band data switch are hard-wire connected to said wide band data
 5 switch.

41. A line unit for a switched telecommunications network comprising trunked together program controlled switches connected to subscriber premises by local links connected to such line units,
 5 said line unit comprising;

a line concentrator network for connection to a plurality of local links, said concentrator network including switches, and a high bandwidth port;

customer interface hardware;

10 a converter for converting signals on the plurality of local links to digital signals at a predetermined narrowband bit-rate; and

a monitor, for detecting a pre-designated signal on one of the plurality of local links and providing an

15 output signal to said concentrator network to cause
said concentrator network to provide a connection to
said port for signals on the one link.

42. A line unit according to claim 41, wherein
said concentrator network comprise solid state
switches.

sub 2⁹ 43. A line unit according to claim 42, wherein
the concentrator switches create a hard wire
connection to said port for the one link.

44. A line unit according to claim 43, wherein
said line unit delivers said signals on the one link
to said port in unconverted format.

sub 2¹⁰ 45. A line unit according to claim 41, including
a digital signal processor with a programmed
controller providing coding and decoding functions
adapted to a service requested by the detected signal
5 and the physical level protocol used over the one
local link

46. A line unit for selective connection of a
local link to a digital switch of a telephone network
and a broadband data network, the line unit
comprising:

5 a switch for connection to the local link, the
switch comprising a first port for a narrowband
communication and a second port for connection to the
broadband data network; and

means for detecting a request for a broadband
10 service and in response controlling the switch to
connect the local link to the second port.

47. A line unit as in claim 46, further comprising a channel circuit, coupled to the first port, for channeling signals for communication via the local link and a predetermined digital rate channel
5 corresponding to the narrowband communication.

48. A line unit for selective connection of a local link to a digital switch of a telephone network and a broadband data network, the line unit comprising:

5 a switch for connection to the local link, the switch comprising a first port for a narrowband communication and a second port for connection to the broadband data network;

a channel circuit, coupled to the first port, for
10 channeling signals for communication via the local link and a predetermined digital rate channel corresponding to the narrowband communication; and

a monitor for coupling to the local link to detect a broadband service request, and in response,
15 control the switch to connect the local link to the second port.

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